

# TOPPENISH/SIMCOE INSTREAM FLOW RESTORATION

9705300

## SHORT DESCRIPTION:

Restoration of instream flows in Toppenish and Simcoe creeks through the substitution of irrigation water sources, improved irrigation efficiency, and lease or purchase of land.

## SPONSOR/CONTRACTOR: YIN

Yakama Indian Nation

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## SUB-CONTRACTORS:

Subcontractors not chosen yet; will need technical assistance to analyze certain aspects of existing irrigation works, and to plan and design any construction. All construction will be subcontracted.

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## GOALS

### GENERAL:

Supports a healthy Columbia basin, Maintains biological diversity, Maintains genetic integrity, Increases run sizes or populations, Provides needed habitat protection

### ANADROMOUS FISH:

Habitat or tributary passage

### NPPC PROGRAM MEASURE:

no response

### RELATION TO MEASURE:

The measure solicits proposals from the Yakama Nation for establishing instream flows in the Yakima subbasin. This proposal finds and implements the most practical regime for maintaining instream flows in a significant Yakima River tributary, building on existing instream flow studies.

### OTHER PLANNING DOCUMENTS:

This proposal builds on past planning efforts. The NWPPC Yakima Subbasin Plan called for instream flow improvements in the proposed project area. Subsequent instream flow studies and planning documents associated with the Yakima River Basin Water Enhancement Project further defined the problem and the options for remedial action. Providing for instream flow is one of the actions recommended in Wy Kan Ush Me Wa Kish Wit for meeting the tribes' Yakima Basin steelhead return goal.

### TARGET STOCK

Middle Columbia River steelhead (Yakima Basin, Toppenish Creek)

### LIFE STAGE

All freshwater life stages STOCK  
MANAGEMENT CODE: N, P, W

### MGMT CODE (see below)

### AFFECTED STOCK

All wildlife species using riparian habitats

### BENEFIT OR DETRIMENT

Beneficial

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## BACKGROUND

### Stream name:

Toppenish and Simcoe Creeks (Simcoe Cr is a tributary of Toppenish Cr)

### Stream miles affected:

Toppenish Creek: miles 32.7-44.2  
Simcoe Creek: miles 1.0-19.9

### LAND AREA INFORMATION

#### Subbasin:

Yakima

#### Land ownership:

Tribal trust land including allotments, and fee patent land in private ownership.

#### Acres affected:

The two stream reaches drain an area of 370 square miles.

### HISTORY:

This section is not applicable because, although this is not a new project for 1998, the initial 1997 funding has not yet been received.

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## PURPOSE AND METHODS

### SPECIFIC MEASUREABLE OBJECTIVES:

The project objective is to increase the Toppenish Creek summer steelhead run to 1,000 adults. This is more than a tenfold increase over the highest recent estimate based on redd counts, but is consistent with a 1950's-era estimate based on timing and expansion of dam jumps.

Specifically, the project would facilitate the latter half of the smolt outmigration from Toppenish Creek (smolts and kelts are now stranded in dry or average years) and reopen about 10 miles of stream for summer rearing, and terminate unscreened diversions from Simcoe Creek.

### CRITICAL UNCERTAINTIES:

The critical uncertainty lies in the assumption that more and better summer habitat, and better late-spring passage conditions will increase steelhead numbers in the Toppenish Creek basin. The larger run to the neighboring Satus Creek basin, where there is similar upstream habitat quantity and quality but no diversions downstream, supports this assumption.

### BIOLOGICAL NEED:

The Toppenish Creek and adjacent Satus Creek watersheds produce about half the Yakima Basin's wild summer steelhead. Recent analysis indicates that two populations are genetically distinct from each other and from other Yakima Basin populations. Toppenish Creek and Satus Creek steelhead have suffered serious declines in numbers since reservation population monitoring began in 1988. Nearly all of the remaining production is in Satus Creek, but natural factors account for little or none of the difference between the two watersheds. In fact, Toppenish Creek was estimated to have produced more steelhead than Satus Creek as recently as the 1950's. Local problems mirror the coast-wide decline in steelhead populations which has occurred in recent years. This event has prompted a petition by the Oregon Natural Resources Council for the National Marine Fisheries Service to list 111 steelhead stocks, including Yakima River summer steelhead, as threatened or endangered under the Endangered Species Act.

While there are no longer any active irrigations in the Satus Creek watershed, Toppenish Creek and its tributaries are diverted in several locations. We believe irrigation diversions to be the major reason for the extremely low numbers of Toppenish Creek steelhead (probably fewer than 100 adults returning per year since 1988), compared to Satus Creek. Preservation of this stock is important to the diversity and overall productivity of Yakima Basin summer steelhead.

### ALTERNATIVE APPROACHES:

The project will choose from several approaches including substitution of surface water or ground water, increasing conveyance efficiency, and land lease or purchase. The only approach rejected so far is storage of runoff. The size and location of necessary reservoirs would all but preclude anadromous fish production.

### METHODS:

Irrigation diversions dry up Toppenish and Simcoe Creeks in summer. The water supply is unreliable and delivery systems are poorly maintained. We propose to end summertime diversions without increasing hardship on local landowners.

Up to 2,000 acres are currently irrigated from Toppenish and Simcoe creeks within and upstream from the Toppenish-Simcoe Unit of the Wapato Irrigation Project, with 70 percent in tribal trust status and 30 percent in fee patent ownership. Tribal land would be leased from willing parties for a 10-year period, and fee patent land purchased outright from willing sellers. Resident landowners would be offered compensation for giving up or accepting limitations on water rights in lieu of sale or lease. The proposed project would then tailor diversions to mimic historical distribution of spring floodwaters across the upper Toppenish Creek and Simcoe Creek basins, recharging aquifers to maintain summer flow and fish habitat in Toppenish and Simcoe creeks. The two largest diversions in the Simcoe Creek basin would be screened and used as above; the other three would be replaced with wells or Wapato Irrigation Project water if all irrigated land or water rights could not be obtained from willing sellers.

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## PLANNED ACTIVITIES

## SCHEDULE:

<b><u>Planning Phase</u></b>	<b><u>Start</u></b> start of 1998 period	<b><u>End</u></b> end of 1998 period	<b><u>Subcontractor</u></b> Partial (technical assistance)
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**Task** When finally released, 1997 funding will be used to

- (1) map public and private irrigation systems and irrigated lands,
- (2) measure water flows and temperatures in Toppenish and Simcoe creeks, their canals and laterals,
- (3) monitor steelhead populations (redd counts and juvenile sampling) above and below diversions,
- (4) assess on-farm water use versus diversion, and
- (5) begin monitoring the alluvial aquifer along the 5-mile dewatered reach of Toppenish Creek. The term planning is used in this section as gathering information and choosing implementation options. With 1997 information, 1998 planning funding will be used to address substitution options, opportunities to increase irrigation efficiency, and lease and/or purchase of irrigated lands, and continuing baseline monitoring of surface water, groundwater and fish populations described above. Project staff will consult with tribal officials to develop a course of action and mix of methods.

<b><u>Implementation Phase</u></b>	<b><u>Start</u></b> start of 1998 period	<b><u>End</u></b> end of 1999 period	<b><u>Subcontractor</u></b> Partial (technical assistance)
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**Task** Purchase or lease irrigated land. Monitor canal flow, also stream flow, fish habitat and fish populations above and below diversions, to assess biological response to project.

<b><u>O&amp;M Phase</u></b>	<b><u>Start</u></b> start of 2001 period	<b><u>End</u></b> end of 2001 period	<b><u>Subcontractor</u></b>
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**Task** Maintain leases. Monitoring functions assumed by YIN.

## CONSTRAINTS OR FACTORS THAT MAY CAUSE SCHEDULE OR BUDGET CHANGES:

Evaluation of water supply options by tribal officials may slow the schedule, as would participation of individual landowners in lease or sale arrangements. Water management options that require the least disruption to individual landowners would likely be implemented most quickly.

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## OUTCOMES, MONITORING AND EVALUATION

### SUMMARY OF EXPECTED OUTCOMES

#### Expected performance of target population or quality change in land area affected:

Diversions from Toppenish and Simcoe creeks will be limited to the high-flow period in spring, when flood waters used to fan out naturally. This will maintain seasonal recharge of alluvial aquifers in the upper basin, while allowing base flow to remain in Toppenish and Simcoe creeks in the summer and fall. With improved habitat quality and quantity, and better outmigration conditions, we expect to increase the Toppenish Creek basin population of summer steelhead to 1,000 adults. This would not only be a numerical contribution, but would protect an important drought-adapted population.

#### Present utilization and conservation potential of target population or area:

The Toppenish Creek steelhead population is small, but persists in the spawning and rearing habitat upstream from diversions. Eastern Washington steelhead populations appear to be opportunistic in their use of habitat as flow conditions improve. Increasing the amount of habitat and allowing movement upstream and downstream from diversions during base flow periods is believed to be an important factor in allowing the population to rebound.

#### Assumed historic status of utilization and conservation potential:

There are no written records, but individuals report many more fish seen (and caught) in the 1950's and 1960's than today. The downward trend has coincided with deteriorating flow conditions below irrigation diversions as (1) more water was diverted, and (2) summers became drier on the average.

#### Long term expected utilization and conservation potential for target population or habitat:

We expect that the Toppenish Creek system can produce 1,000 adult steelhead per year after completion of this project and concur

rent projects farther downstream.

**Contribution toward long-term goal:**

Unknown.

**Indirect biological or environmental changes:**

Riparian restoration will accelerate as summer stream flows improve. In addition to habitat benefits, this will help stabilize the stream corridor against flood erosion, which has become more frequent in recent years. Marginal irrigated lands purchased under the project will be managed for wildlife production in a complementary effort to the present BPA-funded Riparian/Wetlands Restoration project.

**Physical products:**

Eleven miles of stream channel, formerly dry in summer, would ultimately flow year-round, although some natural loss of surface flow can still be expected in braided, aggrading reaches during dry summers.

**Environmental attributes affected by the project:**

Stream flow will increase (natural base flow into the irrigated area is about 15 cfs), and summer water temperature in formerly low-flow reaches will begin to decrease into the range tolerated by salmonids. Land uses (specifically irrigated agriculture) will be restricted for voluntary participants, although cropped acreage is already declining due to climatic, economic and social factors.

**Changes assumed or expected for affected environmental attributes:**

As summer diversions are reduced, base flows below diversion points will respond proportionally. Over the long term, restoration of naturally sub-irrigated stream banks and floodplains will promote natural revegetation of the riparian zone, decreasing erosion and sedimentation from runoff, and adding structure to dissipate flow energy. The existing steelhead population will benefit from greater habitat area and improved habitat quality (greater depth, more cover, lower water velocity, cleaner substrate and lower summer temperature).

**Measure of attribute changes:**

See above.

**Assessment of effects on project outcomes of critical uncertainty:**

We will measure habitat attributes upstream and downstream from diversions. We will attempt to count spawners and migrating smolts, and estimate density of juvenile steelhead above and below diversions.

**Information products:**

The project will produce data on changes in water use, in-channel flow, and response in terms of habitat restoration and utilization by steelhead.

**Coordination outcomes:**

Coordination among natural resources programs and the Office of Legal Counsel of the Yakama Indian Nation, and with the Bureau of Indian Affairs will be the organizational basis for this project. The project will complement the Bureau of Reclamation-funded Toppenish Corridor Demonstration Project and the BPA-funded Lower Valley Wetlands and Riparian Restoration Project.

**MONITORING APPROACH**

The biological outcome should be measurable in terms of the size and productivity of the Toppenish Creek steelhead population. An exhaustive assessment may cost more than the project itself; it may be more cost-effective to plan assessments regionally.

**Provisions to monitor population status or habitat quality:**

Facilities are already in place to monitor upstream and downstream migration of steelhead in the Yakima River at Chandler Cal downstream from the mouth of Toppenish Creek. The Toppenish/Simcoe component will be monitored by redd counts and juvenile sampling.

**Data analysis and evaluation:**

Monitoring data will be collected and analyzed to determine if the objectives of the project have been met. Changes in the stream hydrograph will be monitored by direct measurement of discharge at intervals throughout the year. Rearing habitat quality will be judged in terms of its use by juvenile steelhead. Redd counts in the affected area and throughout the Toppenish/Simcoe system will help to evaluate the contribution of improved habitat to production of Toppenish Creek steelhead.

**Information feed back to management decisions:**

The most immediate type of feedback would be from flow data. Some of the effects on streamflow of changing the season, amount or method of irrigation may be difficult to predict, but may become apparent in the first or second year of operation. Flow benefits greater or less than expected would affect future decisions on how to manage irrigation. Biological response is affected by a larger number of variables, and will take a number of years to assess.

**Critical uncertainties affecting project's outcomes:**

They may be resolved to a degree by the level of monitoring proposed for this project. As discussed in 102 above, more intensive monitoring could be applied selectively under a regional monitoring plan.

**EVALUATION**

Stream hydrograph reflecting natural conditions. Use of newly-available habitat by steelhead spawners and juveniles. Larger steelhead population size, as indicated by redd counts. More smolts per spawner (assessing productivity is not proposed here, but may be appropriate under a regional monitoring plan).

**Incorporating new information regarding uncertainties:**

The Yakama Nation has discretion to establish minimum streamflow in Toppenish and Simcoe creeks. Biological justification is available to make initial decisions; as biological effects of those decisions are assessed, water management changes can be made accordingly.

**Increasing public awareness of F&W activities:**

Toppenish and Simcoe creeks have high visibility. Congress has already recognized their importance by including the complementary Toppenish Corridor Demonstration Project in Title XII of the 1994 Water Appropriations Act.

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**RELATIONSHIPS****RELATED BPA PROJECT**

9206200

8812009

8909000

8506200

**RELATIONSHIP**

This project will complement downstream land acquisition and management activities under the Yakama Nation Riparian/Wetlands Restoration Project.

This project will enhance the potential benefits of steelhead supplementation under the Yakima Fisheries Project.

This project will enhance the benefits of a third juvenile passage facility constructed on Toppenish Creek, and the facility increases the proposed project's likelihood of success.

This project will enhance the benefits of adult and juvenile passage facilities constructed at two locations on Toppenish Creek, and the facilities increase the proposed project's likelihood of success.

**RELATED NON-BPA PROJECT**

Mud Lake Drain Cost-Share Program (Natural Resources Conservation Service)

**RELATIONSHIP**

Provides incentives for on-farm soil and water conservation along Toppenish Creek just downstream from the reach affected by this project.

Toppenish Corridor Demonstration Project (Bureau of Reclamation)

Funds planning for coordinated restoration of Toppenish Creek corridor to enhance fish, wildlife, cultural and agricultural values, as part of the Yakima River Basin Water Enhancement Project.

#### **OPPORTUNITIES FOR COOPERATION:**

The Wapato Irrigation Project, Yakama Agency Realty Office and the Yakama Nation Water Program will identify irrigated parcels and assist the Fisheries Program with negotiations. The Water Program will assist in tribal code enforcement to prevent new, illegal diversions as current diversions are limited or terminated. The Yakama Nation wildlife Program will assist in managing lands and delivery systems for fish and wildlife benefit, which will include diversion of floodwaters. The two BIA delivery systems will be taken over by the Yakama Nation under a P.L. 93-638 contract.

The proposed project will benefit from coordination with the Bureau of Reclamation, which is funding the planning phase of the Toppenish Creek Corridor Enhancement Project under P.L. 103-434 (Yakima River Basin Water Enhancement Project). The Toppenish Creek Corridor Project can be focused farther downstream on Toppenish Creek to improve winter passage and rearing conditions.

The Yakama Nation's Lower Yakima Valley Wetlands and Riparian Area Restoration Project is receiving \$4.9 million from the Bonneville Power Administration to purchase, restore and manage riparian lands along the Yakima River, lower Toppenish Creek (downstream from this project), and lower Satus Creek.

The proposed project will be conducted on tribal lands. Federally-funded actions on tribal lands are subject to the National Environmental Policy Act (NEPA). This type of action suggests a programmatic environmental assessment. The Yakama Reservation Interdisciplinary Team reviews environmental assessments for proposed projects, recommends project changes and mitigation, and ultimately recommends for or against a Finding of No Significant Impact. This process seldom delays carefully-planned projects.

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#### **COSTS AND FTE**

**1997 Planned:** \$308,000

#### **FUTURE FUNDING NEEDS:**

#### **PAST OBLIGATIONS (incl. 1997 if done):**

<u>FY</u>	<u>\$ NEED</u>	<u>% PLAN</u>	<u>% IMPLEMENT</u>	<u>% O AND M</u>
1998	\$350,000			
1999	\$510,000			
2000	\$44,000			
2001	\$44,000			

**1997 OVERHEAD PERCENT:** 24.2%

#### **HOW DOES PERCENTAGE APPLY TO DIRECT COSTS:**

Overhead % not provided so BPA appended older data. All costs except capital equipment and construction subcontracts.

**SUBCONTRACTOR FTE:** Subcontractor not chosen. For planning phase, 1 or 2.

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